

### Titles

- Albert G. Ingalls, T. N., *Robert E. Cox*, 616
- American Astronomers Report—
- Abnormally Blue Galaxies, 231; correction, 400
  - American Astronomical Society group photograph, 5
  - Apsidal Motion in HR 8800, 627
  - Artificial Satellite Temperatures, 345
  - Atmospheres of B Stars, 61
  - Brighter Artificial Satellites? 6
  - Catalogue of Magnetic Stars, 63
  - Cepheid Symposium, 277
  - Comet Arend-Roland (1956h), 120
  - Cosmic Distance Scale and the Red Shift, 275
  - Expanding Star Cluster in Orion, 7
  - Heights of Solar Prominences, 63
  - Infrared Observations of Planets and Satellites, 4
  - Interstellar Gas, 6
  - Is Saturn a Radio Source? 121
  - Lifetimes of Solar Pores, 627
  - Luminosities of Mira Stars, 4
  - Magnetic Stellar Envelopes and Planetary Nebulae, 230
  - Mass of a Long-Period Variable in Ophiuchus, 628
  - Metal Abundances in K-type Stars of Population II, 628
  - Nova Binary Star, 4
  - Origin of Rapidly Rotating Asteroids, 345
  - Outburst of Comet Schwassmann-Wachmann 1, An, 229
  - Prominence Motions and Solar Magnetic Fields, 120
  - Punch-Card Observing, 6
  - Radio Sources Outside Our Galaxy, 61
  - Revision of Rowland's Tables, 4
  - Rotation and Expansion of the Local Super-galaxy, 232
  - Seeing at Kitt Peak, The, 6
  - Solar "Points," 628
  - Southern Stars of High Velocity, 344
  - Spectral Variations of HD 20336, 344
  - Star Cluster Lifetimes, 627
  - Study of the Stellar Association I Lacertae, A, 230
  - Tests of the Solar Ephemeris, 119
  - Variability of Supergiant Stars, 119
- Among Southern Galaxies, Messier 83, 173; NGC 253, 224; III, 289; IV, 334; V, 404; VI, 454; VII, 510; VIII, 566; IX, 618
- Artificial Meteors, 111
- Artificial Satellites (see also under Departments, Observing the Satellites)—
- Another Russian Satellite, 55
  - Artificial Satellite No. 1, 11
  - Celestial Mechanics of Artificial Satellites, *Theodore E. Sterne*, 66; correction, 177
  - Changes in Sputnik Orbits, 223
  - Erratic Orbital Acceleration of 1957 Beta, The, *Luigi G. Jacchia*, 278
  - Exploration of the Moon, 333
  - Explorer I Radio Signals, *Robert H. McCracken*, 278
  - Fall of Sputnik I Sphere Recorded by Radio, 222
  - Fate of 1957a1, 131
  - Final Moments of Sputnik II, The, *Luigi G. Jacchia*, 561
  - First American Satellite, 222
  - First Man-Made Satellites, The, 56; correction, 131
  - Observing-Instrument Modifications, 279
  - Operation Phototrack, 387
  - Orbit of Sputnik II, 129
  - Photographic Tracking Stations, 333
  - Results from Explorer I, 398
  - Some Satellite Observing Statistics, 182
  - Sputnik II Falls to Earth, 399
  - Telescopic View of a Satellite Rocket, A, 182
  - Two New Artificial Satellites, 332
  - Upper-Air Densities, 130
- Astronautic Chart, The, *Roy C. Spencer*, 572
- Astronomy at Illinois, 3
- Aurora Pastel, An, 215
- Celestial Mechanics of Artificial Satellites, *Theodore E. Sterne*, 66; correction, 177
- Cleveland's Large Schmidt Telescope Moved, *Victor M. Blanco*, 64
- Color on the Moon? *V. Axel Firsoff*, 329
- Convention in Ithaca, *H. M. C. and W. E. S.*, 556
- Convention in Pasadena, *Alan McClure*, 629
- Crab Nebula as a Supernova Remnant, The, *Otto Struve*, 174
- Densities of Gaseous Nebulae, The, *Otto Struve*, 401
- Double Star Studies in Indonesia, 20
- Einstein's Equation— $E = mc^2$ , *Otto Struve*, 336; correction, 400
- Exchange of Mass in Close Binaries, *Otto Struve*, 70; correction, 103
- Far-Ultraviolet Radiation of the Night Sky, *Otto Struve*, 445
- February's Great Multicolored Aurora, 280
- Final Moments of Sputnik II, The, *Luigi G. Jacchia*, 561
- Galactic Co-ordinates, *Otto Struve*, 611
- Graphic Time Table of the Heavens—1958, 133, 134-135
- Great Aurora of September 22-23, The, *James E. McDonald*, 14
- IAU Moscow Meeting, 439
- Irregularities in the Earth's Rotation, *T. Gold*, I, 216; II, 284
- Lick's 120-inch Mirror Gets Final Touches, 69
- London's New Planetarium, *Henry C. King*, 440
- Longway Planetarium in Flint, Michigan, The, *Maurice G. Moore*, 500
- McDonald Observatory's 36-inch Reflector, *W. A. Hiltner*, 124
- Migrating Birds Use Stars To Navigate, 607
- Most Massive Stars Known, The, *Otto Struve*, 18
- National Observatory at Kitt Peak, The, *Aden B. Meinel*, 493
- Naval Research Laboratory's 84-foot Radio Telescope, The, *Edward F. McClain*, 609
- New Comet Burnham, 267
- New Photometer for Very Faint Stars, A, *Harold L. Johnson*, 558
- Night-Sky Observatory, 163
- Observing Plans for October's Eclipse, *Robert J. Low*, I, 395; II, 450
- Operation Phototrack, 387
- Orbits of Visual Double Stars, *Otto Struve*, 548; correction, 617
- Origin of the Aurora, *Joseph W. Chamberlain*, I, 268; II, 339
- Paris Symposium on Radio Astronomy, The, *Bart J. Bok*, 620
- Planetarium in Brazil, *O. Dias de Almeida*, 400
- Poincare, Henri, and His Cosmogonical Studies, *Otto Struve*, 226; correction, 283
- Probable Meteorite Fall in Brazil, A, *Vincent Menezes*, 10
- Problem in Celestial Motions, A, *Otto Struve*, 512; correction, 560
- Project Stratoscope—Solar Photographs from 80,000 Feet, *John B. Rogerson, Jr.*, 112
- Radio Echoes from the Moon, 178
- Rocket Ultraviolet Solar Spectroscopy, *William A. Rense*, 502
- Rotation of Venus, 547
- Seeing Compensator Employing Television Techniques, A, *John H. DeWitt*, *Robert H. Hardie*, and *Carl K. Seyfert*, 8
- Seeing Scale for Visual Observers, A, *Clyde W. Tombaugh* and *Bradford A. Smith*, 449
- Shajn, G. A., and Russian Astronomy, *Otto Struve*, 272
- Sky and Eye, The, *Franklin E. Roach* and *Pauline M. Jamnick*, 164
- Solar Radio Astronomy in Texas, *Alan Maxwell*, 388
- Some Very Irregular Variable Stars, *Thomas A. Cragg*, 127; correction, 179
- Survey of Astronautical Periodicals, A, *Fredrick I. Ordway*, III, 169
- 33 Brightest Minor Planets, The, 75
- Total Eclipse of the Sun, A, 615
- Veil Nebula as a Supernova Remnant, The, *Otto Struve*, 116
- Wisconsin's Pine Bluff Observatory, 552

## Authors

- Aller, Lawrence H.*, book review, 523  
*Ashbrook, Joseph*, *Astronomical Scrapbook*, 74, 180, 290, 394, 509, 623  
 book reviews, 305, 647  
 Some Lunar Observing Problems, 237  
*Ashbrook, Martha D.*, book review, 363  
*Ayers, Robert M.*, letter, 15  
*Bailey, Edwin F.*, book reviews, 361, 646  
*Bartmess, Rex M.*, 9-inch Springfield Telescope for Public Observing, A, 350  
*Bates, Ralph S.*, book reviews, 196, 416  
*Beyer, Beth*, Middle East Convention, 407  
*Blanco, Victor M.*, Cleveland's Large Schmidt Telescope Moved, 64  
*Bok, Bart J.*, Paris Symposium on Radio Astronomy, The, 620  
*Brewer, E. M.*, Southwest Convention, 569  
*Briser, John P.*, Surplus Film Available, 359  
*C. A. F.*, see *Federer, Charles A., Jr.*  
*Capen, Charles F., Jr.*, Filter Techniques for Planetary Observers, 517  
*Carroll, Warren H.*, letter, 327  
*Chamberlain, Joseph W.*, Origin of the Aurora, I, 268; II, 339  
*Cheney, W. C.*, Vacuum Film Container, A, 99  
*Cornell, Herbert W.*, Mercury, Venus, and Regulus in the Morning Sky, 579  
*Corrado, Henry M.*, Convention in Ithaca, 556  
*Cox, Robert E.*, Albert G. Ingalls, T. N., 616  
 conductor, Gleanings for ATM's, 38, 96, 148, 201, 251, 309, 368, 423, 473, 529, 589, 651  
 Herschelian Telescopes for Amateur Use, 589  
 More Maksutov Notes—Radius Testing, 309  
 Neo-Brachyt Reflector, The, 529; correction, 654  
 Newtonian Focus Position and Parfocal Eyepieces, 651  
 Notes and New Data on Maksutov Telescopes, 423  
 Using Spherometers in Maksutov Radius Testing, 473  
*Cragg, Thomas A.*, Some Very Irregular Variable Stars, 127; correction, 179  
*Custer, Clarence P.*, Prime-Focus Camera for a Large Amateur Reflector, A, I, 148; II, 201  
 Prime-Focus Photography for the Amateur, 352  
*de Vaucouleurs, G.*, book review, 469  
*DeWitt, John H.*, *Hardie, Robert H.*, and *Seyfert, Carl K.*, Seeing Compensator Employing Television Techniques, A, 8  
*Dias de Almeida, O.*, Planetarium in Brazil, 400  
*Ebel, John A.*, Southeast Convention, 453  
*Eyster, J. A. E.*, Rigid Pier, A, 653  
*Federer, Charles A., Jr.*, book review, 584  
 Kansas City Convention Marks League's First Decade, 16  
*Firsoff, V. Axel*, Color on the Moon, 329  
*Fleischer, Robert*, book review, 31  
*Gasteyer, Charles*, book review, 361  
*Gauss, Stephen*, Countersun Observed, 596  
*Gingerich, Owen*, book review, 141  
*Glenn, William H.*, Meteors, 155, 317, 378, 431, 481, 539, 597, 657  
 Sun, Moon, and Planets This Month, The, 155, 207, 259, 317, 379, 431, 481, 539, 580, 657  
*Gold, T.*, Irregularities in the Earth's Rotation, I, 216; II, 284  
*Goldenblatt, Philip*, Brooklyn Observatory, 183  
*Griggs, Nelson M.*, letter, 179  
*H. M. C.*, see *Corrado, Henry M.*  
*Haas, Walter H.*, book review, 645  
*Hardie, Robert H.*, see *DeWitt, John H.*  
*Herbig, G. H.*, book review, 245  
*Hernandez, Jose*, North Central Convention, 453  
*Herring, Alike K.*, Observing the Moon, Posidonius, 464; Pitatus, 637  
*Hiltner, W. A.*, McDonald Observatory's 36-inch Reflector, 124  
*Hoag, Arthur A.*, book review, 524  
*Hoffleit, Dorrit*, book review, 245  
 Variable Star Observers Meet at Amherst, 76  
*Houston, Walter Scott*, Deep-Sky Wonders, 25, 84, 191, 238, 299, 359, 411, 465, 583, 637  
*Howard, W. E., III*, and *Young, A. T.*, letter, 15  
*Hudlow, Paul*, Inexpensive Observatory in Texas, An, 255  
*Hynek, J. Allen*, book reviews, 33, 585  
*J. A.*, see *Ashbrook, Joseph*  
*Jacchia, Luigi G.*, Erratic Orbital Acceleration of 1957 Beta, The, 278  
 Final Moments of Sputnik II, The, 561  
*Jacobsen, T. S.*, book review, 89  
*Jamnick, Pauline M.*, see *Roach, Franklin E.*  
*Johnson, Gus*, Naked-Eye Sunspot Observing, 138  
*Johnson, Harold L.*, New Photometer for Very Faint Stars, A, 558  
*Johnston, Robert B.*, letter, 501  
*King, Gerald A.*, Troy, New York, 453  
*King, Henry C.*, London's New Planetarium, 440  
*Krinov, E. L.*, letter, 15  
*Kutter, Anton*, letter, 654  
*Larrieu, A. C.*, View of the Lunar Crater Kies, A, 138  
*Lodge, Francis*, Hunting Messier Objects, 568  
*Losh, Hazel Marie*, book reviews, 141, 195  
*Lovi, George*, Basement Planetarium, A, 122  
 letter, 501  
*Low, Robert J.*, Observing Plans for October's Eclipse, I, 395; II, 450  
*Masson, Kelvin*, Easily Built Adjustable Slit, An, 256  
*Maxwell, Alan*, Solar Radio Astronomy in Texas, 388  
*McClain, Edward F.*, Naval Research Laboratory's 84-foot Radio Telescope, The, 609  
*McClure, Alan*, Convention in Pasadena, 629  
*McCracken, Robert H.*, Explorer I Radio Signals, 278  
*McDonald, James E.*, Great Aurora of September 22-23, The, 14  
 letter, 179  
*McFarland, G. L.*, 10-inch Reflector with a Pasadena Mounting, A, 427  
*McIntosh, Patrick*, Lunar Crater Plato, The, 22  
 Mapping the Floor of Plato, 297  
*Meinel, Aden B.*, National Observatory at Kitt Peak, The, 493  
*Melin, Marshall*, Observing the Satellites, 458, 507, 562, 624  
*Menezes, Vincent*, Probable Meteorite Fall in Brazil, A, 10  
*Menon, T. K.*, book review, 32  
*Mickel, Joseph*, Occultation of Saturn, 25  
*Moore, Maurice G.*, Longway Planetarium in Flint, Michigan, The, 500  
*Moore, Patrick*, letter, 179  
*Munch, Guido*, book review, 90  
*Newman, Edward J.*, Northwest Convention, 631  
*Norman, Burt A.*, 11-inch Maksutov Telescope, An, 96; correction, 151  
 New Test for Cassgrainian Secondaries, A, 38  
*Oravec, Edward G.*, Things To Observe in the Sky, I, 219; II, 346; III, 443; IV, 564  
*Ordway, Frederick I., III*, letter, 327  
 Survey of Astronomical Periodicals, A, 169  
*Otoupalik, Josef R.*, Seeing Planets by Day, 22  
*Ottens, Hein*, Mirror Making in South Africa, 235  
*Parker, Don*, Versatile Observing Setup with an 8-inch Reflector, A, 43  
*Parmenter, B. C.*, New Solar Observatory in the Northwest, A, 593  
*Pillans, Helen*, book review, 87  
*Priser, John B.*, Surplus Film Available, 359  
*R. E. C.*, see *Cox, Robert E.*  
*Redmond, Richard*, Airplane Sightings of Comets, 155  
*Reese, Elmer J.*, letter, 15  
*Rense, William A.*, Rocket Ultraviolet Solar Spectroscopy, 502  
*Rizzo, P. V.*, book reviews, 246, 416  
*Roach, Franklin E.*, and *Jamnick, Pauline M.*, Sky and Eye, The, 164  
*Rogerson, John B., Jr.*, Project Stratoscope—Solar Photographs from 80,000 Feet, 112  
*Seekins, H. W.*, Simple Method of Star Photography, A, 300  
*Semeran, Walter J.*, Construction of a Solar Telescope, 368  
*Seyfert, Carl K.*, see *DeWitt, John H.*  
*Shawcross, William E.*, book reviews, 144, 195, 305  
 Convention in Ithaca, 556  
 Questions from the S + T Mailbag, 7, 65, 118, 171, 221, 283, 338, 393, 457, 491, 551, 610  
 Satellites of Saturn, The, 409  
 Some Lunar Observing Problems, 237  
*Smith, Bradford A.*, see *Tombaugh, Clyde W.*  
*Smith, Elske V. P.*, book review, 31  
*Smith, Gregory*, Grazing Lunar Eclipse, 464  
*Spencer, Roy C.*, Astronautic Chart, The, 572  
*Stein, Raymond J.*, book review, 584  
*Sterne, Theodore E.*, Celestial Mechanics of Artificial Satellites, 66; correction, 177  
*Sternig, John*, book review, 470  
*Struve, Otto*, Crab Nebula as a Supernova Remnant, The, 174  
 Densities of Gaseous Nebulae, The, 401  
 Einstein's Equation— $E = mc^2$ , 336; correction, 400  
 Exchange of Mass in Close Binaries, 70; correction, 103  
 Far-Ultraviolet Radiation of the Night Sky, 445  
 Galactic Co-ordinates, 611  
 Most Massive Stars Known, The, 18  
 Orbits of Visual Double Stars, 548; correction, 617  
 Poincare, Henri, and His Cosmogonical Studies, 226; correction, 283  
 Problem in Celestial Motions, A, 512; correction, 560  
 Shajn, G. A., and Russian Astronomy, 272  
 Veil Nebula as a Supernova Remnant, The, 116  
*Sumner, Richard*, Film for Naked-Eye Sunspot Observing, 430  
*Tombaugh, Clyde W.*, and *Smith, Bradford A.*, Seeing Scale for Visual Observers, A, 449  
*Tripp, Mrs. Carolyn*, Miami Amateurs Televise the Moon, 77  
*van der Elst, E. A.*, Amateurs in Holland, 568  
*Velghe, Albert G.*, book review, 90  
*W. E. S.*, see *Shawcross, William E.*  
*W. H. G.*, see *Glenn, William H.*  
*Wanders, A. J. M.*, Venus' Markings, 241  
*Worch, Charles H.*, Garage Observatory, A, 349  
*Wyatt, Stanley P., Jr.*, book review, 303  
*Yoss, Kenneth M.*, book reviews, 363, 469  
*Young, A. T.*, see *Howard, W. E., III*

## Departments and Features

### Amateur Astronomers—

AAVSO Solar Division "SEA" Program, 183  
AAVSO Spring Meeting, 407; 47th AAVSO Spring Meeting, 515  
AAVSO Fall Meeting, 631  
Amateur Radio Astronomy in Great Britain, 183  
Amateurs in Holland, 568  
Ann Arbor, Michigan, 236  
Astronomical League To Meet at Ithaca, 292; Astronomical League Convention Notes, 349  
Baltimore, Maryland, 183  
Basement Planetarium, A, 122  
Blair Medal Awarded at Western Convention, 77  
Brooklyn Observatory, 183  
Caracas, Venezuela, 183  
Christmas over Denver, 349  
Contacting National Organizations, 76  
Crayford Observatory, 350  
East Cleveland, Ohio, 76, 236  
Eatontown, New Jersey, 17  
Edinburg, Texas, 76  
Eureka, California, 76  
Ft. Wayne, Indiana, 349  
Foucault Pendulums, 569  
Friend, Clarence L., Dies, 235  
Gamble, Carl H., Dies, 292  
Garage Observatory, A, 349  
Grants Pass, Oregon, 183  
Great Lakes Convention, 453  
Hunting Messier Objects, 568  
International Amateur Meeting Proposed, 235  
Juniors in California, 568  
Juniors in Oklahoma and Puerto Rico, 76  
Kansas City Convention Marks League's First Decade, 16  
Listing of Societies, 183; Society Listing, 453  
Long Island Star Parties, 407  
Massillon, Ohio, 568  
Memphis, Tennessee, 292  
Miami Amateurs Televise the Moon, 77  
Michigan Amateur Dies, 453  
Middle East Convention, 235, 407  
Midland, Texas, 568  
Mid-States Convention, 515  
Mirror Making Classes in New York City, 630  
Mirror Making in South Africa, 235  
More Junior Groups, 292  
Mountain States Meeting, 515  
Nashua, New Hampshire, 568  
New Club in Alabama, 515  
New Science TV Program, 77  
New York Juniors, 17  
9-inch Springfield Telescope for Public Observing, A, 350  
North Central Convention, 292, 453; North Central Region, 568  
Northeastern Ohio, 236  
Northwest Convention, 349, 631  
Offbeat Meeting, 235  
Palmer, Massachusetts, 568  
Paterson, New Jersey, 17, 292  
Pierce, John M., Dies, 407  
Regional Meetings, 122  
St. Louis, Missouri, 182  
Salem, Oregon, 183  
Santa Ana, California, 17  
Solar System to Scale, 292  
Southeast Convention, 350, 453  
Southwest Convention, 569  
"Space" Magazine, 453  
Stellafane 1958, 183; Stellafane Notes, 453; Telescope Makers Meet at Stellafane, 631  
This Month's Meetings, 17, 77, 122, 183, 235, 292, 349, 407, 453, 515, 568, 632  
Toronto, Canada, 292

Troy, New York, 453  
Two Amateur Observatories, 568  
Utica, New York, 292  
Variable Star Observers, 182  
Variable Star Observers Meet at Amherst, 76  
Waynesboro, Pennsylvania, 76  
Western Amateurs To Meet at Pasadena, 349  
Wilmington, Delaware, 631  
Yonkers, New York, 453

### Astronomical Puzzle—

Mostly Constellations and Stars, 565

### Astronomical Scrapbook—

Brothers Henry, The, 394  
Great Paris Telescope, The, 509  
Naming Some Minor Planets, 74  
Navigators of the Old Pacific, 180  
Schmidt, Julius, and the Moon, 290  
*Selenographical Journal, The*, 623

### Books and the Sky—

Amateur Astronomer, The, Patrick Moore, 141  
And There Was Light, Rudolf Thiel, 246  
Astronomer's Universe, The, Bart J. Bok, 584  
Atlas of the Sky, Vincent de Callatay, 584  
Cosmic View: The Universe in 40 Jumps, Kees Boeke, 363  
Dawn of Life, The, J. H. Rush, 469  
Discoveries and Opinions of Galileo, Stillman Drake, translator, 31  
Discovery of the Universe, Gerard de Vaucouleurs, 87  
Galactic Nebulae and Interstellar Matter, Jean Dufay, 90  
Galactic Novae, The, Cecilia Payne-Gaposchkin, 245  
Galileo and the Magic Numbers, Sidney Rosen, 416  
How To Make a Telescope, Jean Texereau, 361  
Inner Metagalaxy, The, Harlow Shapley, 303  
Introducing Astronomy, J. B. Sidgwick, 141  
Introduction to Astronomy, An, Robert H. Baker, 195  
Introduction to the Moon, Dinsmore Alter, 647  
Key to the Stars, A, R. van der Riet Woolley, 196  
Le Ciel et la Terre, Andre Danjon, Pierre Pruvost, and Jules Blache, editors, 90  
Life of Arthur Stanley Eddington, The, A. Vibert Douglas, 32  
Light Scattering by Small Particles, H. C. van de Hulst, 31  
Light: Visible and Invisible, Eduard Ruechardt, 646  
Optics, Bruno Rossi, 585  
Optics: The Science of Vision, Vasco Ronchi, 33  
Oxidation and Weathering of Meteorites, The, John Davis Buddhue, 245  
Planet Earth, The, D. R. Bates, editor, 416  
Planet Jupiter, The, Bertrand M. Peek, 645  
Planet Venus, The, Patrick Moore, 305  
Practical Astronomy, W. Schroeder, 195  
Present and Future of the Telescope of Moderate Size, The, Frank Bradshaw Wood, editor, 524  
Rockets, Missiles, and Space Travel, Willy Ley, 144  
Stars, The, W. Kruse and W. Dieckvoss, 363  
Stars Above Us, The, Ernst Zinner, 361  
Teaching Science to the Ordinary Pupil, K. Laybourn and C. H. Bailey, 470  
Telescope, The, Harry Edward Neal, 469

Theoretical Astrophysics, V. A. Ambartsumyan, editor, 523  
Theories of the Universe: From Babylonian Myth to Modern Science, Milton K. Munitz, editor, 89

### Celestial Calendar—

Airplane Sightings of Comets, 155  
Countersun Observed, 596  
Favorable Month for Occultations, A, 656  
Film for Naked-Eye Sunspot Observing, 430  
Jupiter's Satellites, 155, 206, 259, 316, 378, 430, 480, 538  
Meteors, 102, 155, 317, 378, 481, 539, 657  
Minima of Algol, 46, 103, 154, 206, 258, 316, 378, 431, 480, 538, 596, 657  
Minor Planet Predictions, 46, 206, 259, 379, 430, 480, 538, 596, 656  
Moon Phases and Distance, 47, 102, 154, 206, 259, 316, 379, 430, 480, 538, 596, 657  
Occultation Predictions, 46, 102, 154, 206, 258, 316, 378, 480, 538, 656  
Occultations by Saturn, 378  
Sun, Moon, and Planets This Month, The, 47, 103, 155, 207, 259, 317, 379, 431, 481, 539, 597, 657  
Variable Star Maxima, 46, 102, 154, 206, 258, 317, 378, 430, 481, 539, 596, 657  
Venus' Inferior Conjunction, 154

### Feature pictures—

Region of the Veil nebula in Cygnus, January, center  
Southern galaxies: NGC 5236, 172; NGC 253, 225; NGC 300, 288; NGC 613, 335; NGC 1097, 404; NGC 1316 and 1317, 455; NGC 6769, 6770, and 6771, 511; NGC 1808, 567; NGC 1515, 619

### Front-cover photographs—

Albert G. Ingalls at Stellafane, 605  
Aurora pastel, 213  
Custer telescope, 325  
Ft. Davis radio telescope, 385  
Kitt Peak observatory site, 489  
London Planetarium, 437  
Model of Russian 102-inch telescope, 545  
Observing on Fritz Peak, 161  
Project Stratoscope launching, 109  
Red aurora, 265  
Sputnik rocket over Connecticut, 53  
University of Illinois Observatory, 1

### Getting Acquainted with Astronomy—

Things To Observe in the Sky, I, 219; II, 346; III, 443; IV, 564

### Gleanings for ATM's—

Amateur's 12-inch Modified Cassegrainian, An, 251  
Barlow's Tables, 534  
Construction of a Solar Telescope, 368  
Easily Built Adjustable Slit, An, 256  
Herschelian Telescopes for Amateur Use, 589  
Inexpensive Observatory in Texas, An, 255  
Maksutov telescopes: 11-inch Maksutov Telescope, An, 96, correction, 151; More Maksutov Notes—Radius Testing, 309; Notes and New Data on Maksutov Telescopes, 423; Using Spherometers in Maksutov Radius Testing, 473  
Neo-Brachyt Reflector, The, 529  
New Solar Observatory in the Northwest, A, 593  
New Test for Cassegrainian Secondaries, A, 38



Newtonian Focus Position and Parfocal Eye-pieces, 651  
 Prime-Focus Camera for a Large Amateur Reflector, A, I, 148; II, 201  
 Rigid Pier, A, 653  
 10-inch Reflector with a Pasadena Mounting, A, 427  
 Vacuum Film Container, A, 99  
 Versatile Observing Setup with an 8-inch Reflector, A, 43

Here and There with Amateurs, 293, 569

In the Current Journals, 12, 73, 123, 181, 234, 287, 343, 406, 456, 514, 555, 626

Letters, 15, 179, 327, 501, 654

New Books Received, 34, 93, 144, 197, 306, 364, 419, 471, 525, 587, 648

#### News Notes—

Alter, Dinsmore, Retires, 342  
 American Astronomical Society, 457  
 Aratos' "Phaenomena" Translated from the Greek, 628  
 Artificial Satellites in 1946, 181  
 Ashen Light of Venus, 123  
 Astronomical Society of the Pacific Meeting, 397  
 Aurora Photographs Wanted, 234  
 Baade, Walter, Retires, 514  
 Barton, Samuel G., Dies, 626  
 Bound Volumes of ASP "Leaflets," 628  
 Breakup of Star Clusters, 555  
 Bruce Medal, 457  
 Burns, Kevin, Dies, 456  
 Catalogue of Galaxies and Clusters of Galaxies, 234  
 Changes in the Sun's Magnetic Field, 555  
 Clusters of Galaxies and Intergalactic Oscillation, 406  
 Color of the Milky Way, 287  
 Conference for College Teachers of Astronomy, 406  
 Distances of Clusters, 12  
 Eclipse Expeditions, 499  
 Fire near Mt. Wilson, 123  
 First Progress Report of IGY Meteor Observing, 287  
 Five Stellar Populations, 287  
 Giant Dish Used To Track Sputnik I Rocket, 123  
 Giant Solar Furnace, 457  
 Indiana Expedition to South Africa, 73  
 Jupiter's Clouds, 9  
 Long-Enduring Meteor Trains, 13  
 Lundmark, Knut, 457  
 Magellanic Cloud Visual Brightnesses, 626  
 Meteoritical Society, 554  
 Mount Stromlo Report, 407  
 NSF Research Grants, 13, 509  
 National Academy of Sciences Awards for Astronomy, 406  
 National Observatory Contract Awarded, 181; National Observatory Director Appointed, 234; National Observatory To Be on Kitt Peak, 342

Naval Observatory Double Star Program, 274  
 New Giant Radio Telescopes, 456  
 New Lick Director, 287  
 New Pencil-Beam Antenna for Radio Astronomy, 343  
 New Radio Astronomy Tool, 234  
 New Stellar Stream, 555  
 1959 Total Eclipse, 12  
 Nova in Ophiuchus, 343  
 Nova Sagittarii 1932, 560  
 ONR Astronomy Program, 12  
 Operation Moonbeam, 73  
 Orbit of Nereid, 181  
 Planetarium Symposium at Cranbrook, 514  
 Planetary Temperatures, 343  
 Plasmoids, 122  
 Pleiades Photometry, 626  
 Position Available at Griffith Observatory, 177; New Associate Director at Griffith Observatory, 514  
 Possible Sources of a Lunar Atmosphere, 342  
 Project Stratoscope Report Wins AAAS Prize, 168  
 Radio-Noise Conference, 406  
 Radio Spectroheliograph at Stanford University, 118  
 Radio Telescope at Sugar Grove, 626  
 Radio Test for a Lunar Atmosphere, 12  
 Recurrent Nova in Ophiuchus, 555  
 Red Stars near the Galactic Nucleus, 626  
 Sale of Herschel Relics, 234  
 Sanford, R. F., Dies, 406  
 Satellite Weather Pictures To Be Made with Photocells, 12  
 Sea-Surface Gravimeter, 338  
 Search for Interstellar Deuterium, 181  
 Shape of the Earth, 514  
 South-North Comparison, 13  
 Stamford Planetarium, 228  
 Sun Pillar, 457  
 Supernova in M83, 287  
 Texture of the Moon's Surface, 456  
 Thickness of Antarctic Continent's Ice Layer, 73  
 Transits of Venus Past and Future, 514  
 12 Lacertae Campaign, 177  
 University of Michigan 85-foot Radio Telescope, 123  
 Visiting Professors To Tour Colleges, 181; Visiting Professors Program Resumes, 555  
 West Virginia Ceremony for Radio Observatory, 12  
 When Is Mercury at Quarter Phase? 173  
 Wilfred Hall Observatory, 277  
 Work Suspended on 98-inch Isaac Newton Telescope, 499

#### Observer's Page—

Amateur Observations of the Sun, 184  
 Amateur Photoelectric Photometry of Comet Arend-Roland, 241  
 April's Annular Eclipse Observed in the Orient, 413  
 Aurora of September 4-5, 640  
 Aurora on May 13-14, 464  
 Bright Red Aurora, A, 137  
 Comet Mrkos and Solar Activity, 27

### Special Supplements

XV. Chart for Finding a Satellite's Distance and Elevation, A, Jack W. Slowey  
 MOONWATCH Team Registrations Since Bulletin No. 7  
 Number 9, July, center  
 Smithsonian Precision Photographs of 1958's Satellite Rockets  
 XVI. Regions of Visibility of a Satellite After Launching—II

Deep-Sky Wonders, 25, 84, 191, 238, 299, 359, 411, 465, 583, 637  
 Filter Techniques for Planetary Observers, 517  
 Grazing Lunar Eclipse, 464  
 How To Make Use of Universal Time, 192  
 July 8-9 Aurora, 580  
 June 6-7 Aurora, 520  
 Lunar Crater Plato, The, 22  
 Lunar Curiosity, A, 414  
 Lunar Eclipse of November 7th, The, 21; November's Eclipse of the Moon, 136  
 Mapping the Floor of Plato, 297  
 March 11th Aurora, 357  
 Mercury, Venus, and Regulus in the Morning Sky, 579  
 Naked-Eye Sunspot Observing, 138  
 Observing Herschel Objects, 191  
 Observing the Moon, Posidonius, 464; Pithagoras, 637  
 Occultation of Saturn, 25; Saturn's Occultation Observed, 83  
 Phases of Venus, 520  
 "Photoelectric Photometer, The," 21  
 Prime-Focus Photography for the Amateur, 352  
 Satellites of Saturn, The, 409  
 Seeing Planets by Day, 22  
 September Aurorae, 26  
 Simple Method of Star Photography, A, 300  
 Some Lunar Observing Problems, 237  
 Some Notes on New and Recent Comets, 79  
 Sunspot Count Reaches Highest Maximum, 410  
 Sunspot Numbers, 22, 84, 138, 188, 237, 299, 357, 430, 465, 538, 580, 640  
 Surplus Film Available, 359  
 Uranus in Cancer, 357  
 Venus' Markings, 241  
 View of the Lunar Crater Kies, A, 138

#### Observing the Satellites (see also under Titles, Artificial Satellites)—

Another American Satellite, 562  
 Dimensions of Sputnik II, 459  
 First Space Traveler, The, 508  
 Instrumentation of Sputnik III, 458  
 Instruments, 563  
 Lifetimes of American Satellites, 459  
 Long-Range Visibility Forecasts, 507  
 Lunar Probes, 624  
 Satellite Brightnesses, 563  
 Satellite Publication, 459  
 Shorter Notes, 508  
 Space Age: Year One, 624  
 Sputnik III Launched, 458  
 Telescope in Space, A, 625

#### Planetarium Notes, 236, 632

Questions from the S+T Mailbag, 7, 65, 118, 171, 221, 283, 338, 393, 457, 491, 551, 610

Southern Stars, 48, 104, 208, 320, 484, 600, 660

Stars for . . . (current month), 49, 105, 157, 209, 261, 321, 381, 433, 485, 541, 601, 661

Bulletin for Visual Observers of Satellites, Smithsonian Astrophysical Observatory  
 Number 8, March, center  
 Message to MOONWATCHERS, A, J. Allen Hynek  
 MOONWATCH Observations, Leon Campbell, Jr.  
 XIV. Regions of Visibility of a Satellite After Launching, George Veis  
 Satellite Simulator, A, Armand N. Spitz

99,

ers,

21;

ing

ita-

lta-

ur,

00

79

m,

99,

es,